

IN THE CLAIMS:

Please amend claims 1, 3-4, 11-12 and 14 as follows:

1. (Currently Amended) A method of analysis of DNA sequence, comprising the steps of:
 - ~~pretreating~~ treating a solution containing a nucleic acid substrate for a complementary strand extension reaction by degrading, using pyrophosphatase, pyrophosphoric acid contained in the solution, and/or degrading, using apyrase, adenosine 5'-triphosphate contained in the solution;
 - removing or inactivating the pyrophosphatase and/or the apyrase in the solution after the pretreating step;
 - mixing the solution with a DNA primer, a target nucleic acid and a reagent for the extension reaction on the DNA primer after the step of removing or inactivating;
 - conducting the extension reaction on the DNA primer hybridized to the target nucleic acid; and
 - detecting pyrophosphoric acid generated by the extension reaction after the removing or inactivating step, wherein the solution does not contain the DNA primer, the target acid and the reagent.
2. (Previously Presented) A method of analysis of DNA sequence according to Claim 1, wherein the pyrophosphatase and/or the apyrase is immobilized on a solid.
3. (Currently Amended) A method of analysis of DNA sequence, comprising steps of:
 - adding pyrophosphatase and/or apyrase to one or more solutions each containing a different deoxynucleotide, or an analogue of the deoxynucleotide and then thereby degrading pyrophosphoric acid or adenosine 5'-triphosphate, respectively, contained in the solutions;
 - removing or inactivating the pyrophosphates and/or the apyrase in the solution after the step of degrading after the adding step;
 - mixing the one or more solutions, a DNA primer, a target nucleic acid and a reagent for extension reaction of the DNA primer after the step of removing or inactivating; and
 - extending the DNA primer hybridized to the target nucleic acid, by using DNA polymerase and at least one of the solutions; and

detecting pyrophosphoric acid generated during an extension reaction by chemiluminescence-reaction after the removing or inactivating step, wherein the one or more solutions does not contain the DNA primer, the target acid and the reagent.

4. (Currently Amended) A method of analysis of DNA sequence comprising steps of:

adding pyrophosphatase to one or more solutions each containing a different deoxynucleotide, or an analogue of the deoxynucleotide and then thereby degrading pyrophosphoric acid contained in the solutions;

removing or inactivating the pyrophosphates in the solutions after the step of degrading after the adding step;

mixing the one or more solutions, a DNA primer, a target nucleic acid and a reagent for an extension reaction of the DNA primer after the step of removing or inactivating the pyrophosphatase;

extending the DNA primer hybridized to the target nucleic acid, by using DNA polymerase and at least one of the solutions and converting pyrophosphoric acid, generated during the extension reaction, into adenosine 5'-triphosphate in presence of adenosine 5'-phosphosulfate and ATP sulfurylase; and

detecting luminescence caused by chemiluminescence-reaction using the adenosine 5'-triphosphate, a luminescence-enzyme and a luminescence substrate after the removing or inactivating step, wherein the one or more solutions does not contain the DNA primer, the target acid and the reagent.

5. (Cancelled)

6. (Previously Presented) A method of analysis of DNA sequence according to Claim 4, wherein the step of adding the pyrophosphatase comprises a step of adding the pyrophosphatase to at least one of the solutions containing the DNA-primer, the DNA-polymerase, the luminescence-enzyme, the luminescence-substrate, the adenosine 5'-phosphosulfate, or the ATP-sulfurylase, thereby degrading the pyrophosphoric acid contained therein, and/or adding apyrase to degrade at least one of the solutions containing the adenosine 5'-phosphosulfate.

7. (Previously Presented) A method of analysis of DNA sequence according to Claim 6, further comprising a step of removing or inactivating the pyrophosphatase and/or the apyrase added in said at least one of the solutions.
8. (Previously Presented) A method of analysis of DNA sequence according to Claim 7, wherein the pyrophosphatase and/or the apyrase is immobilized on a solid.
9. (Previously Presented) A method of analysis of DNA sequence according to Claim 4, wherein a base at the 3' terminus of the primer is complementary to one base located next to a single nucleotide polymorphism at one side of a 3' terminus in the target nucleic acid.
10. (Previously Presented) A method of analysis of DNA sequence according to Claim 4, wherein a second or third base from the 3' terminus of the DNA primer is substituted with a base not complementary to one base sequence of the target nucleic acid.
11. (Currently Amended) A method of analysis of DNA sequence, comprising steps of:
 - a first step of adding pyrophosphatase to each of a solution containing deoxyadenosine 5'- α -thiotriphosphate, a solution containing deoxythymidine 5'-triphosphate, a solution containing deoxyguanosine 5'-triphosphate and a solution containing deoxycytidine 5'-triphosphate, and then thereby degrading pyrophosphoric acid contained in each of the solutions;
 - a second step of removing or inactivating the pyrophosphatase in each of the solutions after the first step;
 - a third step of mixing the one or more solutions, a DNA primer, a target nucleic acid and a reagent for extension reaction of the DNA primer after the second step;
 - a fourth step of extending the DNA primer hybridized to the target nucleic acid, by using DNA polymerase and at least one of the solutions obtained in said second step, converting pyrophosphoric acid generated during the extension reaction into adenosine 5'-triphosphate in presence of adenosine 5' phosphosulfate and ATP sulfurylase; and
 - a fifth step of detecting luminescence caused by chemiluminescence-reaction using the adenosine 5' triphosphate, lusiferase and luciferin after the second step,

wherein each of the solutions does not contain the DNA primer, the target acid and the reagent.

12. (Currently Amended) A method of analysis of DNA sequence, comprising steps of:
 - a first step of adding pyrophosphatase to a solution containing deoxyadenosine 5'- α -thiotriphosphate, deoxythymidine 5'-triphosphate, deoxyguanosine 5'-triphosphate and deoxycytidine 5'-triphosphate, thereby degrading the pyrophosphoric acid contained in the solution;
 - a second step of removing or inactivating the pyrophosphatase in each of the solutions after the first step;
 - a third step of mixing the one or more solutions, a DNA primer, a target nucleic acid and a reagent for an extension reaction of the DNA primer after the second step, and
 - a fourth step of extending the DNA primer hybridized to the target nucleic acid, by using DNA polymerase and at least one of the solutions obtained in said second step, converting pyrophosphoric acid, generated during the extension reaction, into adenosine 5'-triphosphate in presence of adenosine 5' phosphosulfate and ATP sulfurylase; and
 - a fifth step of detecting luminescence caused by chemiluminescence-reaction using the adenosine 5' triphosphate, lusiferase and luciferin after the second step, wherein each of the solutions does not contain the DNA primer, the target acid and the reagent.
13. (Previously Presented) A method of analysis of DNA sequence according to Claim 12, wherein a second or third base from the 3' terminus of the DNA primer is substituted with a base not complementary to one base sequence of the target nucleic acid.
14. (Previously Presented) A method of analysis of DNA sequence according to Claim 12, wherein the extension reaction is conducted by repeating hybridization of the DNA primer to the target nucleic acid via degrading an extended strand produced in the extension reaction from the 5' terminus of the extended strand, using a 5' \rightarrow 3' exonuclease reaction.